

NASA/DOD  
MEMORANDUM OF UNDERSTANDING  
ON  
MANAGEMENT AND OPERATION  
OF  
THE SPACE TRANSPORTATION SYSTEM

1.0 PURPOSE: The National Aeronautics and Space Act of 1958 establishes roles and responsibilities for the NASA and the DOD with respect to aeronautics and space. Consistent with that act, this Memorandum of Understanding (MOU) defines the broad policies and principles that govern the relationship between the DOD and the NASA relative to the Space Transportation System (STS), and delineates their roles and responsibilities in its development, acquisition, and operation.

Elements of the Space Transportation System include the Space Shuttle, Shuttle-compatible upper stages, Spacelab, launch and landing facilities including associated ground support equipment, appropriate simulation and training facilities, and mission control facilities necessary for operation of the system. Detailed terms and conditions for the management and use of these elements will be included in sub-agreements to this MOU.

2.0 GENERAL POLICIES AND PRINCIPLES: The Space Transportation System (STS) is a national asset designed to serve both civil and defense users in a manner consistent with applicable space policy directives, statutes and executive orders. The NASA is responsible

for overall management of the STS. The DOD, in conjunction with the designated office for other operations in space, is the agency within the U.S. government with the responsibility to represent national security interests in the STS and therefore is participating as a partner in its development, acquisition, and operations. The DOD has designated the Air Force as the sole point of contact with the NASA for all commitments affecting the STS and its use in matters regarding national security space operations and international defense activities covered by Government to Government agreements.

Effective and efficient conduct of the STS Program requires an environment of mutual support and cooperation between the two agencies. To this end, an effective interchange of essential technical, financial, and managerial information will be maintained. This interchange will be accomplished at all levels of the Air Force and the NASA. Coordination will be maintained through the Aeronautics and Astronautics Coordinating Board and other joint groups established by mutual agreement.

2.1 Initially, all STS flight operations will have to be directed from NASA-managed facilities at the Johnson Space Center (JSC). In order to ensure that the STS will have maximum national utility, the DOD will develop the capability and the facilities from which to plan and control national security missions. The NASA will assist

in DOD preparation for transition to this facility by integrating DOD personnel into NASA line functions at JSC for training and operational experience.

During this initial period of operations, civil missions conducted in accordance with mission requirements of the civil community, and national security missions conducted in accordance with DOD mission requirements, will share a number of common facilities and other resources at JSC. The DOD will have priority in mission preparation and operations consistent with established national space policy. In the event DOD requirements conflict with other mission activity, the NASA Administrator will honor an official request for priority from the Secretary of the Air Force or refer the matter to higher authority.

2.2 Certain DOD missions operated out of JSC will, by agreement between the Secretary of Defense and the Administrator of the NASA, be specified as "Designated National Security Missions." Designated missions refer to individual missions selected from among those space activities peculiar to or primarily associated with national security programs, associated research and development activities, or space operations involving national security objectives. These missions will be executed by DOD Mission Directors and Flight Directors through the Air Force chain of command. Individual missions may be so designated at any time consistent with necessary preparation and support. The point at

which operational control will be vested in the Air Force will be identified in the joint designating document. For each mission so designated, the DOD and the NASA will develop a mutually agreed mission support plan which will define detailed roles, responsibilities and authorities of the two agencies. The NASA, in response to DOD mission requirements, will conduct other national security missions from JSC. The mission requirements and the necessary support for these missions will be integrated into overall STS planning and operations by the NASA, giving proper recognition to agreed mission priority, available resources, and crew and flight systems capabilities.

2.3 Specific detailed provisions for the period prior to operations in the dedicated DOD facility will be the subject of a sub-agreement to this MOU which will be consummated by the Director JSC and the USAF Commander Space Division.

3.0 ORGANIZATIONAL ROLES AND RESPONSIBILITIES: The effectiveness of the STS requires a cooperative and coordinated effort between the NASA and the DOD in systems development, acquisition and operations. Each agency, however, has a number of responsibilities in which, with the participation of the other, it has the dominant role. The two agencies agree to the following principal roles and responsibilities for management of development, acquisition, and operation of the STS.

3.1 NASA - ROLES AND RESPONSIBILITIES: The NASA has overall responsibility to develop, manage, provide systems engineering for, and operate the Shuttle-based STS to serve all authorized space users in accordance with established policies. In discharging this responsibility, the NASA will:

3.1.1 Develop and acquire the Space Shuttle, which includes the orbiter and its propulsion systems, the solid rocket boosters, the external tank, system enhancements, common flight kits, flight software, and logistics support.

3.1.2 Acquire Spacelab elements, including pressurized module, pallets, instrument pointing system, software, and test and checkout equipment.

3.1.3 Ensure that the commercially-developed Spinning Solid Upper Stages (SSUSs) have adequate safety margins and are functionally compatible with Space Shuttle. The using agency will, under normal circumstances, procure SSUSs directly from the commercial source.

3.1.4 Provide and operate the facilities, general purpose equipment, software and spares required for all Space Shuttle mission planning, simulation, training, and flight operations at JSC; and for pre-launch, launch, landing, and ground turnaround activities for Space Shuttle operations at the Kennedy Space Center (KSC).

3.1.5 Provide requirements for Vandenberg operations for civil missions, and systems level support to VAFB activation. Fund unique NASA requirements.

3.1.6 Incorporate funded national security requirements in the development and operation of the STS with due consideration for schedule and cost impacts. Coordinate with the DOD any changes, such as design, performance, and schedule modifications, which could impact national security mission accomplishment.

3.1.7 Provide to the DOD the civil requirements for the Inertial Upper Stage (IUS), participate with the DOD during IUS development to ensure that these requirements are incorporated, use the IUS for appropriate missions, and fund for requirements which are peculiar to civil needs.

✓ 3.1.8 Carry out Shuttle flight planning, simulation, training, integration, and operations for all Shuttle flights when these activities take place at JSC, except as provided for in paragraph 3.1.9. National security missions conducted by the NASA will be responsive to DOD Mission Directors, with proper recognition given to agreed mission priorities, available resources, and crew and flight system capabilities and safety. The DOD Mission Directors will retain overall responsibility for achieving mission objectives. The DOD personnel will be integrated into NASA line functions for training and to assist in carrying out these activities. The objective of this training is to allow the USAF to develop the capability to plan, control, and operate national security missions.

3.1.9 Support Designated National Security Missions in the manner and to the extent specified and agreed to by the Administrator of the NASA and the Secretary of Defense. For missions so designated, the Air Force will be responsible for overall mission accomplishment and operational control, including flight vehicle and crew safety, through the Air Force chain of command.

3.1.10 Develop, in coordination with the DOD, joint integrated logistics and training plans in support of STS operations. Implement these plans at JSC and KSC. Support implementation of these plans by the Air Force at VAFB.

3.1.11 Support the DOD in the planning, development and activation of a separate DOD facility for Shuttle mission planning, operations, and control.

3.2 DOD - ROLES AND RESPONSIBILITIES: The Department of Defense is responsible for the conduct of all national security missions through the designated DOD offices for the management of national security operations in space. Further, the DOD will develop and acquire specified elements of the STS and will ensure that other aspects of the STS program are consistent with national security requirements. On behalf of the DOD, the Air Force will:

3.2.1 Act as the sole point of contact with the NASA to ensure that the needs and priorities of the DOD and the other departments and agencies with functions related to national security are reflected adequately in the development, acquisition, and operation of the STS.

3.2.2 Provide the requirements and funds for unique facilities and equipment required for national security space operations, and ensure their compatibility with the STS.

3.2.3 Provide such procedures as needed to insure the proper interface between national security missions and the STS. For national security missions, this includes the development and implementation of operational support plans, overall security arrangements, public affairs policies, and contingency plans for emergencies. Where these activities affect NASA responsibilities or facilities, they shall be developed in coordination with the NASA.

3.2.4 Develop the expendable Inertial Upper Stage (IUS), including general purpose ground support equipment and checkout facilities. The Air Force will incorporate the NASA requirements into the IUS and manage the development of NASA funded unique IUS hardware and/or software.

3.2.5 Provide and operate the facilities, general purpose equipment, ground software, and ground spares to perform the prelaunch, launch, landing, and ground turnaround activities for all Space Shuttle operations at VAFB.

3.2.6 Support the NASA in developing joint integrated STS logistics and training plans for use at JSC, KSC, and VAFB. Implement these plans at VAFB.

3.2.7 Serve as the focal point for providing necessary data to the NASA for hardware and software integration for DOD payloads.



3.2.8 Provide a DOD Mission Director, for all national security missions controlled from JSC, who shall have overall responsibility for mission objectives and for providing requirements for the NASA activities in support of mission objectives. In addition, provide trained and qualified DOD Flight Directors for designated national security missions who will exercise operational command and control through the Air Force chain of command. Provide DOD personnel to be integrated into NASA line functions at JSC to develop the DOD's capability to carry out national security missions.

3.2.9 Develop, acquire, and operate a dedicated Shuttle mission planning, operations, and control facility for national security missions. This facility will be compatible with the NASA facilities and each will back up the other to the extent necessary to insure survivability and flight vehicle and crew safety.

### 3.3 OTHER RESPONSIBILITIES:

3.3.1 The resources of both agencies which can contribute to the development, test, production, training, and operations for the STS will be used to the maximum extent possible.

3.3.2 To the maximum extent practical, ground support equipment, software, and ground operating procedures developed for use at KSC by the NASA will be used by the DOD at VAFB. The NASA will acquire, maintain configuration control, and be reimbursed for common GSE and software used by the DOD at VAFB under mutually

agreed financial arrangements. The NASA will consider the DOD operational requirements at VAFB in the development of KSC equipment and procedures to enhance commonality.

3.3.3 Unique payload processing facilities external to the launch pad will be provided by the using agency to support payload operations at each launch site. Where appropriate and feasible, mutual use of facilities and GSE will be planned.

3.3.4 Common STS flight elements will be interchangeable for use on either agency's missions, capable of being operated at all designated launch and landing sites, and compatible with the communications, command and control systems of both agencies. Exceptions to this provision, such as the absence of IUS capability at VAFB, may be reached by mutual agreement of both agencies.

3.3.5 Requirements for procurement and operation of STS elements will be developed by the respective using agency and transmitted in a timely manner to the agency responsible for their fulfillment.

3.3.6 An STS mission assignment schedule and plan, consistent with expendable booster transition and phaseout plans, will be maintained by the NASA to provide the basis for program and operational analyses and planning by both agencies. The DOD will provide timely and appropriate formal inputs to this plan reflecting current mission requirements. Elements of this plan impacting DOD requirements or resources will be coordinated with the DOD prior to publication.

3.3.7 The DOD and the NASA will agree on implementation of the DOD requirements at NASA facilities. These provisions will be subject to negotiated reimbursement in accordance with paragraph 3.3.8.

3.3.8 The NASA is responsible for establishing STS pricing and reimbursement policy for all non-DOD users except for those elements developed by the DOD. Pricing and reimbursement policies between the NASA and the DOD will be jointly negotiated and set forth in separate sub-agreements to this MOU. These sub-agreements will specify those reimbursements which apply to standard missions and system capabilities and those which apply to the development or use of unique capabilities.

3.3.9 The DOD and the NASA will, in response to evolving national policy requirements, identify and implement necessary STS survivability modifications or enhancements.

4.0 SUB-AGREEMENTS: This MOU provides the basis for existing and future sub-agreements between the NASA and DOD organizations. These sub-agreements will further delineate STS development, acquisition, logistics, operations, training, and the related technical and financial roles and responsibilities for each agency. Sub-agreements may be added or deleted as mutually agreed upon by both agencies.

Delegation of approval authority within each agency will be established and authenticated at an organizational level no higher than that required to commit to all provisions called for in the sub-

agreement. The pricing agreement of latest date between the NASA and the DOD concerning Space Transportation System Launch Reimbursements is a valid sub-agreement under this MOU.

#### 5.0 AUTHENTICATION:

5.1 This Memorandum of Understanding represents the basic agreement between the NASA and the DOD for the development, acquisition, and operation of the Space Transportation System. Revisions and/or amendments will be made as required to maintain the currency of this document.

5.2 This Memorandum of Understanding is effective on the latest date of signature on the following page. It supersedes the NASA/DOD Memorandum of Understanding on Management and Operations of the Space Transportation System, dated January 14, 1977 and shall remain in effect until modified or terminated by mutual agreement of the two agencies.

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